

REMARKS

Claims 1-93 are pending in the present application. The Examiner has previously objected to claims 33-38 and 70-75 and has presently rejected claims 1-32, 39-69 and 76-93. Applicants previously amended claims 33 and 70, rewriting them into independent form, and presently amends claim 76 to correct an informality.

I. ALLOWED CLAIMS 33-38 AND 70-75

In the Office Action dated October 27, 2003, the Examiner indicated that claims 33-38 and 70-75 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

In the Response dated January 16, 2004, Applicants amended claims 33 and 70 to include elements recited in respective base claims and any respective intervening claims, thereby placing claims 33-38 and 70-75 in condition for allowance.

In the Office Action dated August 9, 2004, the Examiner did not address the fact that claims 33-38 and 70-75 were in condition for allowance. In fact, in the Office Action Summary, claims 33-38 and 70-75 were not even listed as pending in the present application. Respectfully, claims 33-38 and 70-75 are still pending in the present application and should be allowed.

It is respectfully requested that, as amended in the Response dated January 16, 2004, claims 33-38 and 70-75 be deemed allowed in a subsequent official communication (e.g., a subsequent office action).

II. REJECTION OF CLAIMS 1-32, 39-69 AND 76-93 UNDER 35 U.S.C. § 103(a)

Claims 1-32, 39-69 and 76-93 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,226,509 B1 ("Mole") in view of U.S. Patent No. 6,587,678 B1 ("Molnar"). Applicants respectfully traverse the rejection.

M.P.F.P. § 2145(X)(D)(2) states unequivocally that "[i]t is improper to combine references where the references teach away from their combination".

According to the Examiner, Molnar teaches "a direct conversion receiver for receiving a first input signal and directly down converting it to baseband frequencies". See Office Action at page 2. See also, e.g., Molnar title ("Direct Conversion Receiver Employing Subharmonic Frequency Translator Architecture and Related Preprocessor"). As the Examiner is keenly

aware, direct down conversion is a completely different architecture and process from intermediate frequency (IF) down conversion. Mole directly and specifically teaches away from direct conversion receivers. In fact, the motivation for the Mole invention is to use intermediate frequency (IF) down conversion (as opposed to direct down conversion as taught by Molnar) to avoid many of the disadvantages of direct down conversion such as, for example, the deleterious effects of dc offsets. For example, a significant problem of direct down conversion is that the directly down converted signal band is corrupted by dc offsets (which may be time varying), for example, at the output of a mixer. These dc offsets cannot be filtered out from the desired signal band without removing desired information in the desired signal band. In response to the problem, Mole specifically and directly teaches away from direct down conversion and, instead, adopts an IF down conversion architecture and process.

In the "SUMMARY OF THE PRIOR ART" section, Mole states that there are two "alternative" lines of thought: (1) direct down conversion and (2) IF down conversion. With respect to direct down conversion (i.e., the alternative model used in Molnar, but rejected in Mole), dc offsets "occur at the output of a mixer" and "appear as part of the signal". See Mole at col. 1, lines 63-65. The dc offsets "have the unwanted effect of corrupting data integrity". See Mole at col. 1, lines 65-66. Furthermore, "[u]nfortunately, these dc offsets cannot be filtered out without removing wanted information in the RF signal. Consequently, the sensitivity of a receiver is limited by the level of the dc offsets." See Mole at col. 1, line 67 and col. 2, lines 1-3. To overcome the problem of dc offsets, Mole rejects direct down conversion and, instead, adopts IF down conversion. With respect to IF down conversion (i.e., the alternative model used in Mole), Mole states that IF down conversion is an "alternative line of thought with respect to information recovery from a modulated carrier". See Mole at col. 2, lines 8-9. Mole further explains that "the IF signal, whilst being at reduced frequency relative to the carrier, still has a relatively large frequency displacement with respect to baseband (dc)". See Mole at col. 2, lines 11-13. Thus, the dc offsets can be filtered from the desired signal band.

In addition, Molnar directly and specifically teaches away from IF down conversion as taught by Mole. In the BACKGROUND section, Molnar describes the advantages of down conversion receivers over IF down conversion receivers as well as the disadvantages of IF down conversion receivers. Molnar states that direct conversion receivers eliminate extra components of IF down conversion receivers such as IF filters, additional mixers and additional local

oscillators. See, e.g., Molnar at col. 2, lines 1-3. Furthermore, Molnar disparages IF technology as "bulky, expensive, and not implementable on-chip". See Molnar at col. 2, lines 4-6. These are but a few of the reasons why Molnar rejects IF down conversion architectures and processes (which are espoused by Mole) and, ultimately, adopts direct down conversion architectures and processes.

Since Molnar specifically and directly teaches away from Mole and since Mole specifically and directly teaches away from Molnar, Mole cannot be properly combined with Molnar. It is therefore respectfully submitted that an obviousness rejection based on the combination of Mole and Molnar cannot be maintained.

M.P.E.P. § 2143.02 states that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." It is clear that direct down conversion principles and IF down conversion principles are mutually exclusive principles. Mole refers to the two principles as alternative lines of thought. See, e.g., Mole at col. 1, lines 59-61. Mole emphasizes IF down conversion principles and rejects direct down conversion principles. Molnar emphasizes direct down conversion principles and rejects IF down conversion principles. To modify one in view of the other would inevitably change the principle of operation of the prior art invention being modified. As the prohibition of M.P.E.P. § 2143.02 makes clear, such a modification is not allowed and the teachings of Mole and Molnar are insufficient to render the claims *prima facie* obvious. It is therefore respectfully submitted that an obviousness rejection based on the combination of Mole and Molnar cannot be maintained.

The Examiner also states that the motivation for combining the direct down conversion arrangement of Molnar with the IF down conversion arrangement of Mole was "to improve noise performance and achieve a higher conversion gain". As is clearly described in Mole, Mole adopts an IF down conversion arrangement to avoid the corruption of data integrity which occurs in the direct down conversion arrangement. See, e.g., Mole at col. 1, lines 59-67 and col. 2, lines 1-3. Thus, combining the direct down conversion arrangement of Molnar with the IF down conversion arrangement of Mole would, in fact, degrade noise performance which is in direct contradistinction with the Examiner's motivation for combining Molnar and Mole.

For at least the above reasons, Applicants respectfully submit that the rejection based on Mole in view of Molnar cannot be maintained with respect to claims 1-32, 39-69 and 76-93. It is respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 1-32, 39-69 and 76-93.

**III. CLARIFICATION CONCERNING TRACK AND HOLD CIRCUIT
AND TRACK AND HOLD MEANS FOR TRACKING AND HOLDING**

Independent claims 1, 39 and 61 recite "a track and hold circuit" and independent claim 76 recites "track and hold means for tracking and holding". Claim 76 was amended to correct the unintentional misspelling of "tracking". In each case, the Examiner has stated that mixer 46 illustrated in FIG. 3 of Mole satisfies these elements. The Examiner also refers to Mole at col. 4, lines 1-52 and col. 7, lines 12-63. Applicants have carefully perused Mole and cannot find any reference to "tracking" or "holding" or specifically to circuits that track and hold. In supporting a case of *prima facie* obviousness, the Examiner is respectfully requested to describe how the mixer 46 of Mole is a track and hold circuit or how the mixer 46 of Mole is track and hold means for tracking and holding.


IV. CONCLUSION

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-93 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

Please charge any required fees not paid herewith or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

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Respectfully submitted,



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